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Two intervention programs, reinforcement for appropriate behaviors and verbal reprimands for inappropriate behaviors, were implemented for two disruptive kindergarten children in an ABACACAB design. Appropriate and inappropriate behaviors of the target and nontarget children in the classroom as well as the teacher's behaviors were recorded. Both programs resulted in a reduction of the target children's inappropriate behaviors. Appropriate behaviors, such as Smiling, Playing, Walking, Verbalizing, of the nontarget children were not affected by the programs, while their inappropriate behaviors (Touching Other's Property, Aggression, Noise, Running, Negative Verbalization) were decreased. The reprimand condition was more effective in reducing Noise and Running.

THE EFFECTS OF SOCIAL REINFORCEMENT AND REPRIMAND TECHNIQUES ON THE BEHAVIORS OF DISRUPTIVE CHILDREN AND THE OTHER CHILDREN IN THE CLASSROOM

by

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CHAPTER I

INTRODUCTION

A number of studies have investigated the application of learning principles in the modification of inappropriate and disruptive classroom behaviors. These studies have included techniques such as teacher attention (Becker, Madsen, Arnold, & Thomas, 1967; Hall, Lund, & Jackson, 1968; Madsen, Becker, & Thomas, 1968; Walker & Buckley, 1968), token reinforcement programs (Birnbrauer, Bijou, Wolf, & Kidder, 1965; Birnbrauer & Lawler, 1964; Birnbrauer, Wolf, Kidder, & Tague, 1965; O'Leary & Becker, 1967; Quay, Werry, McQueen, & Sprague, 1966), time out from reinforcement (Pendergrass, 1970), and reprimands (O'Leary & Becker, 1968; Parke & Walters, 1967).

Typically, such investigations have involved the application of a particular procedure and have observed the effect of the manipulation upon the behavior of particular target children. Few of these studies, however, have been concerned with the effect of the manipulation upon the behavior of the other members in the class and of the teacher. In view of the fact that such interventions occur in the context of a classroom, it would appear to be important to determine whether these interventions have any effects on other persons in the classroom.

The only studies which have been concerned with this problem are those of O'Leary, Kaufman, Kass, and Drabman (1970), Broden, Bruce, Mitchell, Carter, and Hall (1970), and Drabman and Lahey (1974). The O'Leary et al. study investigated the effects of loud and soft reprimands on the behavior of disruptive students and other members of the

class. During the baseline assessment, O'Leary and his associates determined that almost all teacher reprimands were found to be loud and could be heard by many other children in the class. O'Leary et al. manipulated loud and soft reprimands in an ABAB design and found that, although soft reprimands were accompanied by decreases in disruptive behaviors of target children as compared to a loud reprimand baseline condition, accompanying decreases were not observed in the rest of the class.

The study by Broden and his associates investigated the effects of teacher attention on attending behavior of two boys at adjacent desks. Their study was in part a result of observations reported by Hall et al. (1968). The Hall study carried out reinforcement procedures to improve the study behavior of individual disruptive students; both teachers and observers noted increases in the attending behavior of pupils sitting near the target pupils in these studies. This observation was consonant with the often repeated reports of teachers that one disruptive pupil increases the inappropriate behavior of his neighbors, and if his behavior is controlled, the behavior of those around him also improves.

Broden and his associates investigated the behavior of a pair of boys who were seated at adjacent desks in a second grade classroom. The effect of providing social reinforcement contingent on appropriate attending behavior of first one, then the other, and finally both seatmates was investigated. During the first experimental phase, the teacher systematically increased the amount of attention for appropriate attending in one boy. This procedure resulted in a dramatic

increase in his attending behavior and a lesser, though significant, increase in the attending behavior of the second boy. During the second experimental phase, systematic attention for attending was initiated for the second child and discontinued for the first child, resulting in further increases in attending by the second child and a reduction in attending by the first child. A brief withdrawal of reinforcement for attending behavior in both boys reduced attending behavior in both pupils. Following the reversal, the attending behavior of both boys was systematically returned to high levels.

The study by Broden et al. provides some evidence that a particular behavioral technique, reinforcement in the form of teacher attention, can have an effect on members of the class other than the target child. Nevertheless, while Broden et al. demonstrated that this technique can be effective when the two children are sitting in adjacent seats, Becker, Thomas, and Carnine (1969) cite evidence that the technique is not effective in all situations. Specifically, when half the class was praised for appropriate behavior, their behavior improved. However, the half of the class that was not praised did not improve.

Drabman and Lahey (1974) designed a behavior modification program that employed positive feedback statements contingent upon appropriate behavior. The program was initiated and withdrawn in an ABAB design on a target child within a classroom. The disruptive behavior of the target child as well as that of her peers was monitored. Drabman and Lahey found that feedback alone resulted in a decreased rate of disruptive behavior of both the target and the nontarget children, even though the nontarget children were not directly treated.

Proceeding on the basis of earlier research findings that behavioral techniques may influence the behaviors of nontarget children in the classroom, systematic investigation of this effect should be conducted. Such investigations should include assessing which techniques differentially affect the behaviors of children in the classroom. These considerations should be important for anyone selecting behavioral techniques in the management of behavioral problems in the classroom.

The purpose of the present study was to investigate the effects of certain behavioral techniques used with two target children on the remaining eight children in a kindergarten classroom. Specifically, the study compared the effects of reprimands (audible to the entire class) for disruptive behavior of the target children and social reinforcement (also audible to the entire class) for appropriate behavior of the same target children on the remaining children in the classroom. Observations of the teacher in her interactions with the children in the classroom were also included.

On the basis of previous research findings, the hypotheses for the present study are as follows:

1) Under the conditions of Reprimand and Reinforcement, the inappropriate behaviors of the target children are expected to decrease with the Reprimand conditions being more effective in reducing the inappropriate behaviors.

2) The target children's appropriate behaviors are expected to increase under Reinforcement conditions, in comparison to the Reprimand condition.

3) The classmates of the target children are expected to show changes in behavior which mirror those obtained for the target children.

CHAPTER II

METHOD

Subjects

The subjects for this study were ten kindergarten children and their teacher. Two male children served as target children. They were selected on the basis of their high frequency of inappropriate behavior during a 3-week observation period of all ten children. The behavior of the eight remaining children (four males and four females) served as the primary data for the present study.

Observers and Reliability

Behavior observations were conducted daily by the author. Reliability was checked twice weekly by a Psychology undergraduate student who was trained on the Behavior Observation Code to a criterion of .85 inter-observer agreement for three consecutive 30-minute sessions. The observer checking reliability participated as an observer in partial fulfillment of an Independent Study course requirement. Approximately twelve hours were spent training the observer prior to the initiation of the study.

Inter-observer agreement was checked twice weekly throughout the course of the study. The method of calculating reliability was the "number of agreements" divided by "number of agreements plus disagreements."

Behavior Observation Code

The Behavior Checklist was derived predominantly from the O'Leary Observation Code (O'Leary & Becker, 1967) with some alterations. There were two categories of child behavior. The categories and the behaviors included in each were: Appropriate Behaviors -- Smiling, Touching Teacher, Out of Seat, Verbalization, Playing, and Walking; Inappropriate Behaviors -- Touching Other's Property, Aggression, Negative Verbalization, Running, and Noise. More than one behavior could be recorded in each interval. The 11 child behaviors and their associated definitions were as follows:

Appropriate Behaviors

1. Smiling -- any facial expression of pleasure or amusement.
2. Touching Teacher -- child comes into (initiates) contact with teacher. Includes hugging, touching shoulder or arm in a positive manner.
3. Out of Seat -- movement of the child from his chair. No part of the child's body is to be touching the chair.
4. Verbalization -- any audible behavior emanating from the mouth which is not negative in connotation or loud. Includes asking and answering questions and quiet talking to neighbors.
5. Playing -- child used his hands to play with his own or community property.
6. Walking -- to distinguish from out-of-seat behavior other than standing. Child actually takes steps away from chair.

Inappropriate Behaviors

1. Touching Other's Property -- child comes into contact with another's property without permission to do so. Includes grabbing, rearranging or destroying the property of another, and touching the desk of another. Excludes physical contact with another person's body.
2. Aggression -- child makes movement toward another person to come into physical contact with him. Excludes brushing into another, grabbing, and destroying another's property. Includes hitting, pushing, and tripping another person.
3. Negative Verbalization -- any audible behavior emanating from the mouth which has negative connotations directed to another object or person and any other loud and audible sounds.
4. Running -- the child is running in the classroom.
5. Noise -- includes all non-verbal sounds, such as tapping on the desk, banging heels against the chair, rubbing two items together, scuffing across the floor, producing a sound with a toy when it is not play period, sliding chair across the floor.

The Teacher Behavior Observation Code consisted of five behaviors reflecting the teacher's response to the child being observed and one behavior reflecting the teacher's response to the class as a group (Instruction). The Code consisted of the following behaviors:

1. Smiling -- any facial expression of pleasure or amusement that the teacher makes to a child.

2. Reprimand -- teacher reprimands or redirects a child.
3. Praise -- teacher gives a verbal comment indicating approval or commendation to an individual.
4. Positive Holding -- teacher holds or touches child in a positive manner. Includes patting a child on the head, arm around child while working at desk.
5. Negative Holding -- teacher holds or touches a child in a negative manner. Includes holding in chair, pushing or shoving into seat.
6. Instruction -- the teacher provides instruction in subject matter or otherwise directs the class.

The Behavior Checklist data sheet was designed to facilitate the recording of the child's behaviors and the teacher reactions to that child. The child behaviors were listed down the left side of the sheet with the list of teacher behaviors continuing below. To the right of each behavior were blocks representing intervals which were to be checked if the particular behavior occurred in the interval. See the Appendix for a copy of the Behavior Checklist data sheet.

Observations

Behavioral observations were recorded for each of the ten children in the kindergarten class. Observations were made four times a week (Monday, Tuesday, Thursday, Friday) from 9:00 - 10:00 a.m. during "snack time and group planning." Time sampling was the method of obtaining observations. Each ½-minute interval was divided into the following sequences: 10 seconds -- observe child behavior, 10 seconds --

observe teacher consequences, 10 seconds -- record preceeding child and teacher behaviors. This sequence was followed daily for 5 minutes of observation of each child, or 10 intervals. The order of observation was varied randomly from day do day by drawing, one by one, the children's names from a box.

Design

Two techniques were used to alter the behavior of the target children: reprimands for inappropriate behavior and social reinforcement for appropriate behavior. The third experimental condition was a control or baseline condition which was included to permit the inappropriate behaviors of the target children to recover and to assess any long-term differential effects of the two treatment conditions. The sequence of eight conditions was baseline-reinforcement-baseline-reprimand-baseline-reprimand-baseline-reinforcement. Each condition in the sequence was run for one week (four days) before shifting to the next condition in the sequence. The sequence was designed to conclude with a condition -- the reinforcement condition -- that would leave the target children benefiting from the techniques used in the study. Dependent variables were the 11 child behaviors and the 6 teacher behaviors for the eight nontarget children assessed during the eight experimental sequences.

Procedure

The experiment was conducted over an eight week period. The teacher of the class was instructed in the proper behavior for the

appropriate conditions -- i.e., responding to target children with either reprimands ("I do not like the noise you are making") or reinforcement ("I like the way you are sitting nicely and listening"). The teacher was directed to continue the procedure for the week throughout the day and also on the day on which no observations were made. The teacher's behavior was observed to provide a check on the teacher's compliance with the instructions for the week. The teacher was instructed to reinforce/reprimand the first appropriate/inappropriate behavior that occurred every 10 minutes (FI 10-minute) in order to maintain a consistent rate. One of the two target children was randomly chosen to receive the conditions each day during the experimental phase, with the restriction that each target child was responded to on two days out of the four days per week. The jingling of a bell signaled the beginning of each 10-minute period for the teacher. After initial attention to the bell, the children expressed no obvious interest in it during the remainder of the study.

The behaviors were observed according to the following schedule:

Week 1 Baseline. The teacher was instructed to respond to the target children in her normal manner with the observer monitoring her behavior to assure adherence to instructions.

Week 2 Initiation of the Reinforcement condition in which the teacher responded to the target child with social praise contingent upon displays of appropriate behavior and ignored displays of inappropriate behavior.

Week 3 Reversal to the Baseline condition.

Week 4 The second experimental condition, Reprimand for inappropriate behavior, was instituted. The teacher was instructed to respond to the target child's problem behavior (the list of inappropriate behaviors presented in the Behavior Observation Code) with reprimands audible to the entire class.

Week 5 Baseline condition.

Week 6 Reinstated the Reprimand phase.

Week 7 Baseline.

Week 8. The study concluded with the Reinforcement condition.

CHAPTER III

RESULTS

Inter-Observer Reliability

Inter-observer agreement was calculated by the formula: number of agreements divided by number of agreements plus disagreements. The calculations were based on 15 observation sessions distributed across all experimental conditions (a total of 12½ hours). The mean overall reliability coefficient for the child behaviors was .92 (ranging from .81 to 1.00). The mean inter-observer agreement for the 11 individual child behaviors was: Smiling, .76; Touching Teacher, .81; Out of Seat, .97; Verbalization, 1.00; Playing, .89; Touching Other's Property, .97; Aggression, 1.00; Noise, .85; Running, 1.00; and Negative Verbalization, .98.

The mean overall reliability coefficient for the teacher behaviors was .88 (ranging from .83 to .93). The mean inter-observer agreement for the teacher behaviors was: Smiling, .85; Reprimand, .88; Praise, .87; Positive Holding, .93; and Instruction, .83. The sixth teacher behavior, Negative Holding, did not occur during the observation sessions.

Target Children's Behaviors

Figure 1 presents the mean number of intervals one or more inappropriate behaviors occurred for the two target children across the eight experimental conditions. The data suggest that the inappropriate behavior of the two target children was decreased during the conditions of

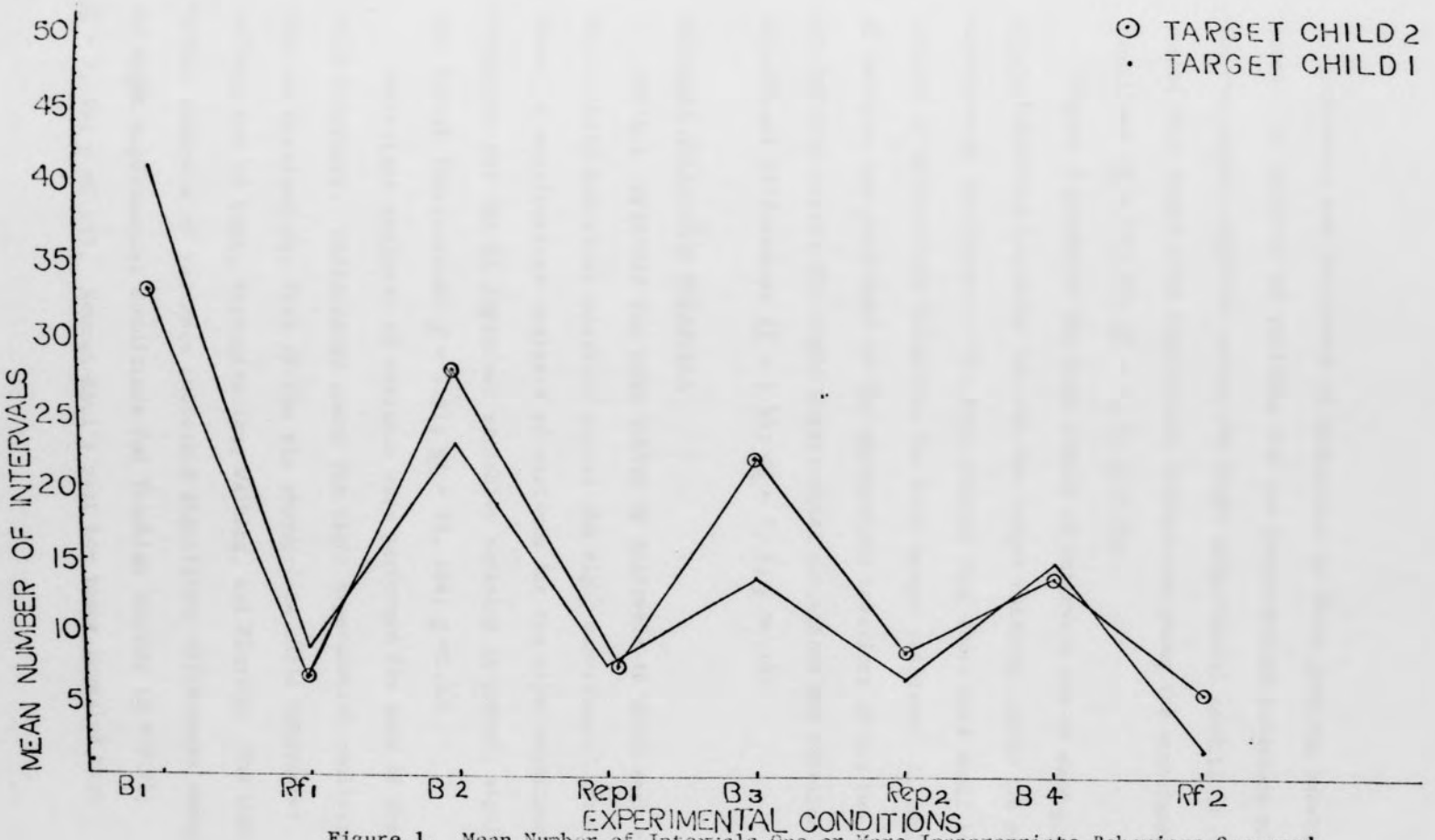

Figure 1. Mean Number of Intervals One or More Inappropriate Behaviors Occurred For the Two Target Children Across the Eight Experimental Conditions

reinforcement and reprimand in comparison to their previous baseline rates. An analysis of variance for the inappropriate behaviors of the two target children across the eight experimental conditions revealed that there were significant differences among the experimental conditions ($F = 133.55$; $df = 7, 7$; $p < .01$).

Figure 2 presents the mean number of intervals one or more appropriate behaviors occurred for the two target children across the eight experimental conditions. The data suggest that there were small increases in appropriate behaviors for both target children. An analysis of variance was performed on the appropriate behaviors of the two target children across the eight experimental conditions and revealed no significant differences ($F = 3.39$; $df = 7, 7$; $p > .10$).

Nontarget Children's Behaviors

Table 1 presents the mean number of intervals in which each of the 11 child behaviors occurred across the eight experimental conditions. A multivariate analysis of variance for the eight experimental conditions and the 11 dependent variables revealed an overall significant effect (Approximate $F = 2.91$; $df = 77, 124$; $p < .05$).

Univariate analyses of variance were performed for each of the 11 child behaviors. Differences among the eight experimental conditions were not obtained for five of the six appropriate child behaviors: Smiling, Out of Seat, Verbalization, Walking, and Playing. The univariate analysis of variance indicated significant differences among the eight experimental conditions for Touching Teacher ($F = 2.91$; $df = 7, 49$; $p < .05$). Newman-Keul's post hoc tests revealed that

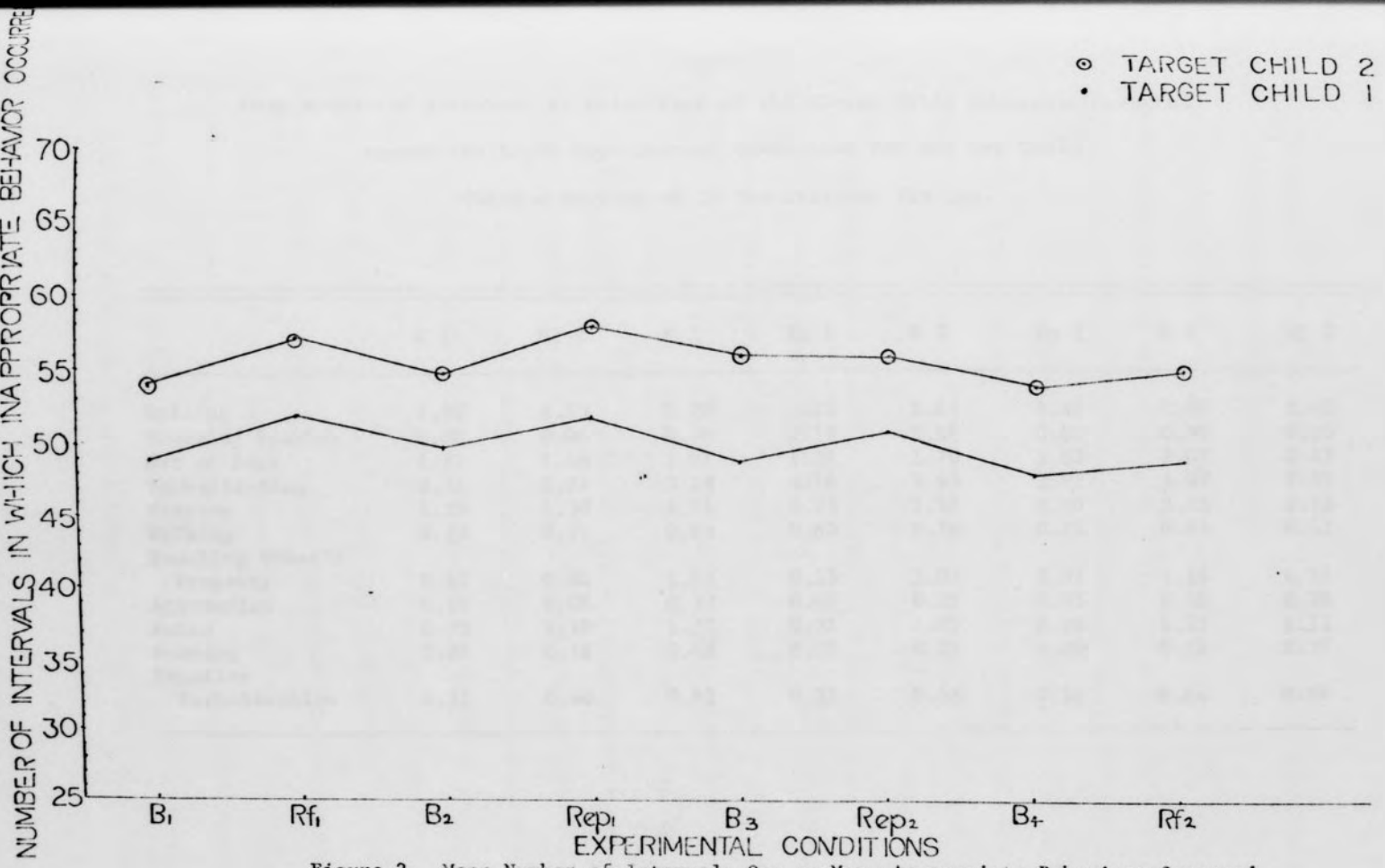

Figure 2. Mean Number of Intervals One or More Appropriate Behaviors Occurred For the Two Target Children Across the Eight Experimental Conditions

Table 1

Mean Number of Intervals in Which Each of the Eleven Child Behaviors Occurred Across the Eight Experimental Conditions Per Day Per Child (With a Maximum of 10 Observations Per Day)

	B 1	Rf 1	B 2	Rp 1	B 3	Rp 2	B 4	Rf 2
Smiling	1.52	1.60	2.28	1.11	1.64	1.48	1.47	1.45
Touching Teacher	0.00	0.96	0.46	0.12	0.34	0.00	0.59	0.15
Out of Seat	1.87	1.66	2.01	1.29	1.70	1.62	2.07	2.43
Verbalization	2.71	2.97	3.28	3.16	2.63	2.92	3.07	2.83
Playing	1.33	1.30	2.01	1.23	1.10	0.90	2.33	1.21
Walking	0.37	0.31	0.83	0.80	0.76	0.75	0.95	0.43
Touching Other's Property	0.53	0.40	1.23	0.25	1.03	0.31	1.19	0.56
Aggression	0.34	0.06	0.33	0.09	0.31	0.03	0.56	0.28
Noise	0.75	1.10	1.33	0.31	1.05	0.28	1.25	1.11
Running	0.25	0.18	0.49	0.03	0.21	0.00	0.71	0.37
Negative Verbalization	1.31	0.40	0.61	0.31	0.58	0.56	0.64	0.59

Touching Teacher was significantly higher during the first Reinforcement condition than during Baseline 1.

Statistical analyses revealed either a trend or significant differences among the eight experimental conditions for all five inappropriate child behaviors. Significant differences among the eight experimental conditions for Touching Other's Property were indicated by the univariate analysis of variance ($F = 11.47$; $df = 7, 49$; $p < .01$). Newman-Keul's post hoc test revealed that Touching Other's Property occurred at a significantly higher rate during Baseline 2 than Reprimand 1, during Baseline 3 than during Reprimand 2, and during Baseline 4 than during Reinforcement 2. The univariate analysis of variance for Aggression indicated a trend toward statistical significance ($F = 2.12$; $df = 7, 49$; $p < .10$); however, the Newman-Keul's post hoc test did not reveal any differences between conditions. The most extreme difference occurred between the second Reprimand condition and its following baseline -- i.e., aggressive behaviors occurred much more often during the Baseline condition which followed the second Reprimand condition. (Hays, 1963, states that it is valid to report the most extreme difference found in the post hoc test in cases of significant univariates and nonsignificant post hocs for the same variable.)

The univariate analysis of variance indicated significant differences among the eight experimental conditions for Noise ($F = 2.31$; $df = 7, 49$; $p < .05$). However, Newman-Keul's post hoc test revealed that Noise did not differ significantly for the experimental conditions and their preceeding baselines. The univariate analysis of variance

indicated significant differences among the eight experimental conditions for Running ($F = 5.99$; $df = 7, 49$; $p < .01$). The Newman-Keul's post hoc tests revealed that Running occurred significantly less often during Reprimand 1 than during Baseline 2 and significantly less often during Reinforcement 2 than during Baseline 4. Significant differences among the eight experimental conditions were also indicated by a univariate analysis of variance for Negative Verbalizations ($F = 5.40$; $df = 7, 49$; $p < .01$). The Newman-Keul's post hoc test revealed that Negative Verbalization occurred at a significantly lower rate during Reinforcement 1 than during its preceeding Baseline.

A Scheffe' post hoc test was performed on each child behavior reaching statistical significance or indicating a trend toward significance on the univariate analyses to compare the rates under the two reinforcement conditions and the two reprimand conditions. Table 2 presents the means for the reinforcement conditions and the reprimand conditions for Touching Teacher, Touching Other's Property, Aggression, Negative Verbalization, Running, and Noise. Of the behaviors with significant univariate analyses, there were no significant differences between reprimand and reinforcement conditions for Aggression, Touching Other's Property, and Negative Verbalization. The behaviors which were differentially affected by reprimand and reinforcement conditions were as follows: Touching Teacher, ($F = 6.47$; $df = 1, 21$; $p < .05$) which occurred at a significantly lower frequency during reprimand conditions than during reinforcement conditions, Noise ($F = 9.20$; $df = 1, 21$; $p < .05$) which occurred significantly more often during reinforcement

Table 2

Combined Mean Number of Intervals for the Reinforcement and Reprimand Conditions for the Behaviors Reaching Statistical Significance (or Trend) on the Univariate Analyses

	Reinforcement Condition	Reprimand Condition
Touching Teacher	1.118	.125*
Touching Other's Property	.968	.562
Aggression	.343	.124
Negative Verbalization	.993	.875*
Running	.562	.031
Noise	2.224	.593*

*$p < .05$

conditions than during reprimand conditions, Running ($F = 7.38$; $df = 1, 21$; $p < .05$) which occurred more often during reinforcement than during reprimand conditions.

Teacher Behaviors

Table 3 presents the mean number of intervals in which each of the six teacher behaviors occurred during the eight experimental conditions. The multivariate analysis of variance did not reveal statistical differences among the conditions.

Table 3

Mean Number of Intervals in Which Each of the Six Teacher Behaviors Occurred During the Eight Experimental Conditions

	B 1	Rf 1	B 2	Rp 1	B 3	Rp 2	B 4	Rf 2
Smiling	0.88	0.50	0.75	0.75	0.50	0.75	0.75	0.88
Reprimand	0.75	0.75	0.75	0.75	0.75	0.62	0.50	0.62
Praise	0.62	0.50	0.75	0.63	0.50	0.38	0.62	0.50
Positive Holding	0.38	0.25	0.13	0.25	0.25	0.12	0.12	0.25
Negative Holding	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Instruction	14.88	14.25	15.00	14.38	14.88	14.88	15.00	14.38

CHAPTER IV

DISCUSSION

The results revealed that both the reinforcement and reprimand conditions reduced the inappropriate behaviors of the two target children. No changes in the appropriate behaviors of the target children were apparent.

The experimental conditions appeared to affect the behavior of the classmates of the two target children. With the exception of one behavior, Touching Teacher, appropriate behaviors were not affected by the experimental conditions. Although Touching Teacher significantly increased during Reinforcement 1, it decreased during the remaining three conditions (the two reprimand conditions and Reinforcement 2). Since this lack of consistency in the direction of behavior change was present, no firm conclusion can be derived from the data.

However, all of the inappropriate behaviors appeared to be affected by the experimental conditions; namely, inappropriate behaviors decreased under both reprimand and reinforcement conditions. The reinforcement and reprimand conditions differentially affected only two of the five inappropriate behaviors: Noise and Running. These behaviors occurred significantly less often under the reprimand conditions than under the reinforcement conditions.

Support for the hypothesis that the experimental manipulations with the target children were responsible for the nontarget children's behaviors was given by the finding that the teacher's behaviors with

respect to the nontarget children did not change as a function of the experimental conditions.

The findings of the present study are in agreement with the results of Drabman and Lahey (1974) in which feedback with no additional contingencies effectively altered the disruptive behavior of the target child and the disruptive behavior of the target's classmates, even though the latter were not directly treated. The findings are also consistent with the Broden et al. (1968) study, which investigated the behavior of a pair of boys who were seated at adjacent desks in a second-grade classroom. The findings in these studies suggest that nontarget children in classroom settings cannot be assumed to be unaffected by behavioral programs for particular target children -- i.e., classmates of target children cannot be assumed to be nontreated controls.

Another finding of Drabman and Lahey's study (1974) was that negative comments from the teacher to the target child decreased. The present study found no significant changes in teacher behavior across the experimental conditions. However, the teacher in this study normally did not use loud reprimands and, since the teacher only reprimanded when instructed, no measure of change could be determined.

A unique aspect of the present study is that an attempt was made to observe a variety of children's classroom behaviors to determine the possible differential effects of the reinforcement and reprimand conditions on both appropriate and inappropriate behaviors. Future examinations of the impact of behavioral programs with target children should

include an assessment of their effect on a larger number of behaviors of nontarget children.

Although all of the inappropriate behaviors were decreased by both experimental conditions, two of them occurred significantly less often during reprimand than during reinforcement conditions. This finding may be related to the fact that the relative change in feedback may have been greater under the reprimand conditions. It may be hypothesized that changes in children's behaviors resulting from experimental manipulations such as those employed in the present study would vary as a function of the children's particular history of stimulus control. One example of data supporting this hypothesis may be found in the O'Leary et al. (1970) study. During the baseline assessment, O'Leary and his associates determined that almost all of the teacher's reprimands were loud. The authors manipulated loud and soft reprimands in an ABAB design and found that soft reprimands were accompanied by greater decreases in the disruptive behavior of target children in comparison to the loud reprimand baseline condition.

The results of the present study suggest that both reinforcement of appropriate behavior and verbal reprimands for inappropriate behavior of target children were effective in reducing target and nontarget children's inappropriate behaviors. While the reprimand condition appeared to be more effective than the reinforcement condition for reducing several inappropriate behaviors, the available evidence is not adequate to recommend the general use of verbal reprimands for controlling kindergarten children's inappropriate behavior. However, the use

of reprimands was not found to have a sizeable effect on the children's appropriate behavior. Due to the small size of the kindergarten class in the present study, a precaution in the generalization of results should be taken. However, a class of this size is not unusual for kindergarten programs.

Future research in this area should include manipulating historical stimulus control factors to determine their interactive effects with particular intervention programs and varying the length of time experimental conditions are in effect to determine the stability of behavior change observed in nontarget children.

Several theories may be presented to account for the changes in nontarget children's behavior. Broden, Bruce, Mitchell, Carter, and Hall (1972) offered three possible explanations of why their second pupil's attending behavior increased when a neighboring pupil received increased teacher attention for attending. They proposed that the second pupil received a "spillover" of reinforcement from the teacher -- proximity of the teacher considered as a reinforcing consequence (while the teacher was reinforcing attending in one of the pair of pupils, she often moved in close proximity to his desk, which placed her close to the other pupil). Broden et al., in fact, did find an increase in the amount of teacher attention to the second child's appropriate attending in the first experimental phase, even though the teacher had been instructed not to do so. Thus, without intending to do so, the teacher may have provided more reinforcement to the behavior of the second pupil, when she reinforced the behavior of his neighbor.

In the present study, the teacher's behavior was carefully monitored, and it was not found to vary significantly across the experimental conditions. Thus, the change in the nontarget children's behavior was probably not due to accidental reinforcement of their behavior when the teacher was reinforcing the target child's behavior. An additional problem with this explanation is that all the nontarget children's behavior changed systematically -- not only the one who was sitting beside the target child.

A second explanation provided by Broden et al. is that teacher proximity served as a discriminative stimulus for appropriate attending. While the experimental conditions in the present study did not require changes in the teacher's proximity to the target or nontarget children, such changes might have taken place. Informal observations, however, suggested no particular patterns of proximity which varied across experimental conditions.

The third possible explanation offered by Broden and his associates for increased study in their second pupil was that of modeling or imitation -- the idea that children may imitate behaviors that they see others perform. A modeling hypothesis is certainly a feasible explanation for the findings in the present study. Modeling alone could have been a critical factor, since both the appropriate and inappropriate behaviors of the nontarget children mirrored those of the target children.

There is much evidence in the literature for modeling being an effective behavior change procedure. Bandura (1969), for example, had

children observe filmed models playing aggressively with a large plastic doll. In a control condition the models displayed neutral interactions with the doll. Given an opportunity to play with the dolls after viewing the films, the children who had seen the aggressive models displayed significantly more aggressive contacts with the doll than did the children who had observed neutral interactions with the doll.

The effectiveness of modeling in clinical work has been shown in a study by Bandura, Blanchard, and Ritter (1969). These investigators examined the possibility that various modeled situations could help people with snake phobias markedly reduce their fear. The researchers exposed fearful adults to both live and filmed displays of people with snakes, gradually increasing the models' closeness to the animals. Results showed substantial reduction of fear. Other research has shown that children's fear of dogs (Hill, Liebert, & Mott, 1968) and dentists (Adelson, Liebert, Poulos, & Herskovitz, 1972) can be reduced through modeling.

A fourth explanation may be directly related to the stimulus control which peers may exert on one another. That is, children's disruptive behavior may serve as either an eliciting or a discriminative stimulus for peer disruptive behavior. Reductions of disruptive behavior could reduce the absolute level of eliciting stimuli and thus the peer disruptive behavior. In the same vein, reduction of disruptive behavior could reduce the discriminative stimuli for peer's disruptive behavior and the consequent peer social reinforcement. However, the author is unaware of any research findings to support this explanation.

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Appendix

Child-Teacher Observation Sheet

Child _____ Date _____

Teacher _____ Time _____

Observer _____ Rel. Checker _____

BEHAVIORS	INTERVALS 1	2	3	4	5	Mean
BEHAVIOR-CHILD						
Appropriate Behaviors						
Smiling						
Touching Teacher						
Total						
Mean						
Out of Seat						
Verbalization						
Walking						
Playing						
Total						
Mean						
Inappropriate Behaviors						
Touching other's property						
Aggression						
Noise						
Running						
Negative Verbalization						
Total						
Mean						
BEHAVIOR-TEACHER						
Instruction						
Praise						
Smiling						
Positive Holding						
Negative Holding						
Reprimand						
Total						
Mean						